

Seminar on Man and Climate Change,  
Manusia dan Perubahan Iklim, June 4, 2009, Jakarta

# Climate Change Mitigation and Adaptation: The Role of Forests

Bruno Locatelli, CIRAD-CIFOR



## Forests deliver important ecosystem services

Ecosystem Services: "The benefits people obtain from ecosystems"

Climate regulation

Scenic beauty

Cultural heritage

Water purification

Spiritual values

Pollination

Pollution control

Water regulation

Genetic resources

Soil protection

Wood

Food

Fuel and energy

# Examples of ecosystem Services

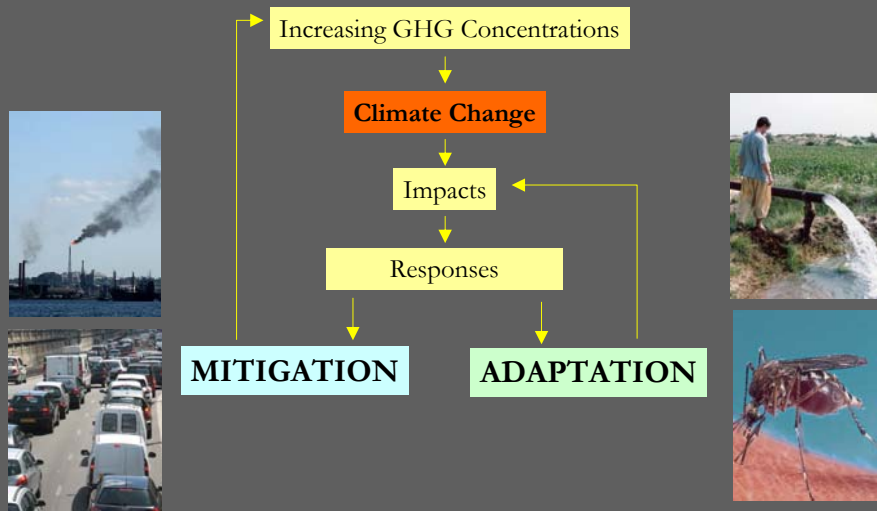
(Millennium Ecosystem Assessment, 2005)

The diagram illustrates the relationship between ecosystems and human well-being, categorized into three main types of ecosystem services: Supporting, Provisioning, and Cultural. These are presented in a vertical flow, with arrows indicating the flow from Supporting to Provisioning, and from Provisioning to Cultural. The background of the diagram is a collage of images related to ecosystems and human well-being, including a river, a forest, and a person walking on a path.

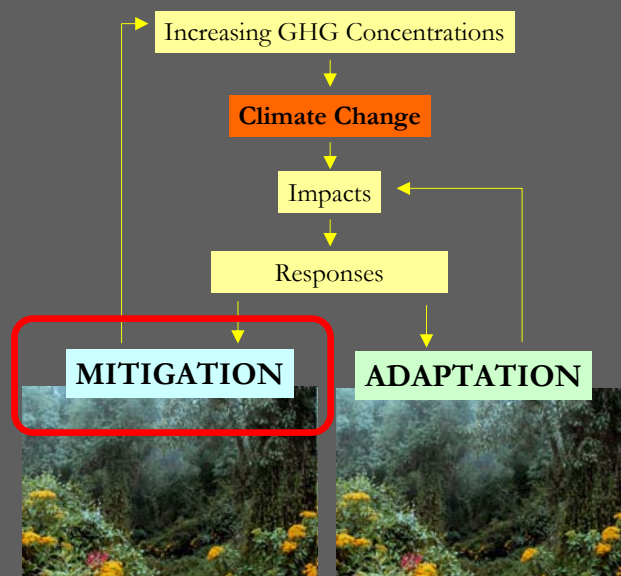
Supporting	Provisioning	Cultural
	Wood and other fibers Food (plant and animals) Natural medicines ...	Spiritual and religious value Landscape beauty Inspiration Cultural heritage ...

[illegible]

## Back to climate change...

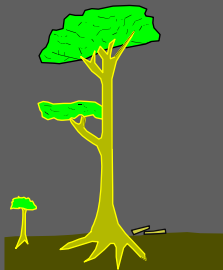


## Forest Ecosystem Services: For Mitigation and Adaptation



## Forests for Mitigation: Principles

Forest = carbon stock

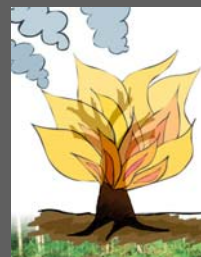


Growing forest =  
carbon sink



- + carbon in the forest
- CO<sub>2</sub> in the atmosphere
- climate change

Destroyed forest =  
carbon source



- carbon in the forest
- + CO<sub>2</sub> in the atmosphere
- + climate change

## Forest Activities for Mitigation

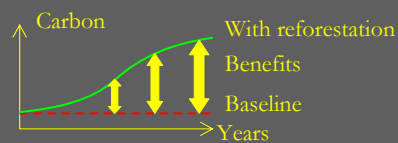
### • Increasing carbon storage



Reforestation



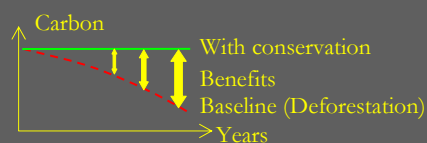
Developing  
agroforestry



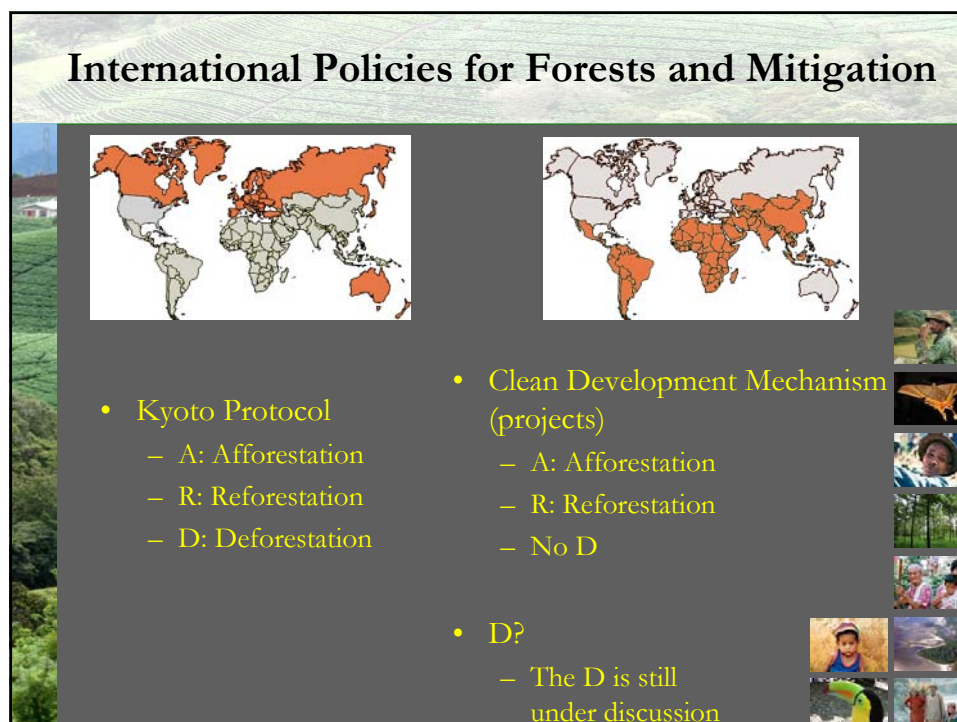
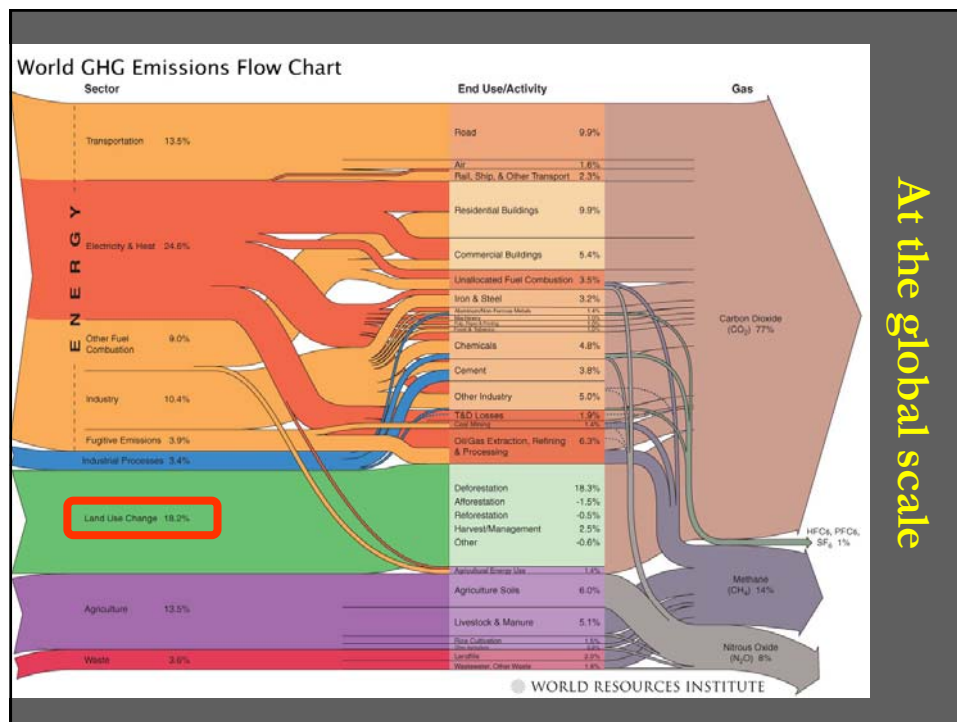
### • Avoiding carbon losses



Reducing  
deforestation





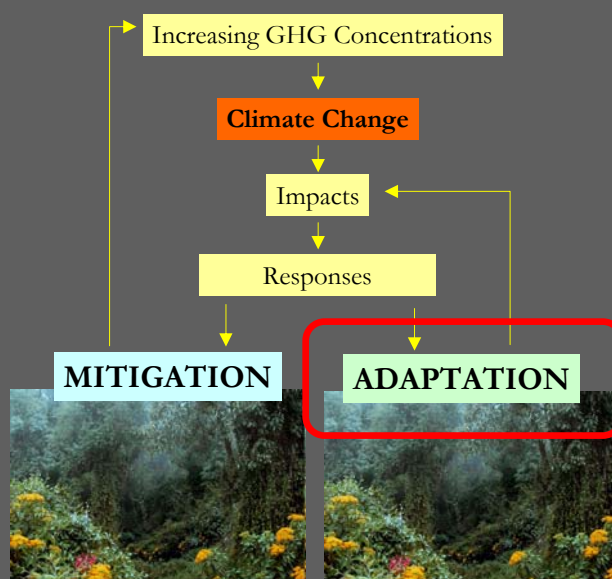


## REDD

- **R**educing  
**E**missions from  
**D**eforestation and forest  
**D**egradation
- Important issue of international negotiations on climate change
  - How to make REDD work?
- Watch “CoP-15” in Copenhagen!



## Forest Ecosystem Services: For Mitigation and Adaptation



## Forest Ecosystem Services and Adaptation



- Example 1: Africa
  - Vulnerability of local livelihoods to droughts
  - Forests products = safety nets = adaptation

- Example 2: Asia
  - Vulnerability of coastal areas to storms
  - Mangroves = protective role = adaptation



- Example 3: Latin America
  - Vulnerability of hydroelectric dams to increasing rainfall intensity and erosion
  - Forest = soil protection = adaptation

## Policies for Forests and Adaptation

- Not well developed
  - e.g., National Communications



- New approach to adaptation:
  - Ecosystem-Based Adaptation
    - Protecting ecosystems for reducing the vulnerability of society
  - International, national and local approach
  - Proposals by many countries and organizations in 2009



